

AVSSD-0136-67-CR

GPO PRICE \$
CFSTI PRICE(S) \$
Hard copy (HC) \$2.00
Microfiche (MF) \$65.-

ff 653 July 65

STERILIZATION ASSEMBLY & DEVELOPMENT LABORATORY

"ROUTINE CLEANING AND DECONTAMINATION
OF
THE SADL FACILITY"

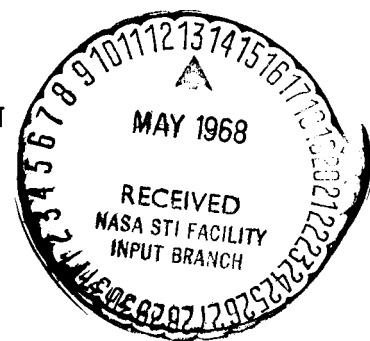
15 April 1967
Task 1.1
JPL CONTRACT 951624

This work was performed for the Jet Propulsion Laboratory,
California Institute of Technology, sponsored by the
National Aeronautics and Space Administration under
Contract NAS7-100.

Prepared by

AVCO CORPORATION
SPACE SYSTEMS DIVISION
Lowell, Massachusetts

for



JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA, CALIFORNIA

68-22682
N68-22682
(THRU)
(CODE) 04
(CATEGORY)
(ACCESSION NUMBER)
(PAGES) 16
(NASA CR OR TXR OR AD NUMBER)
01494381
FACILITY FORM 602

1 of 15

-NOTE-

This report contains information prepared by AVCO Corporation, Space Systems Division, under JPL subcontract. Its content is not necessarily endorsed by the Jet Propulsion Laboratory, California Institute of Technology, or the National Aeronautics and Space Administration

AVSSD-0136-67-CR

STERILIZATION ASSEMBLY & DEVELOPMENT LABORATORY

"ROUTINE CLEANING AND DECONTAMINATION
OF
THE SADL FACILITY"

15 April 1967
Task 1.1
JPL CONTRACT 951624

PREPARED BY: E. J. Lunney
E. J. Lunney
AVCO CORPORATION

PREPARED BY: Dr. E. A. Botan
Dr. E. A. Botan
AVCO CORPORATION

APPROVED BY: T. H. Rider
T. H. Rider
AVCO CORPORATION

APPROVED BY: W. W. Paik
W. W. Paik
JET PROPULSION LABORATORY

APPROVED BY: G. H. Redmann
G. H. Redmann
JET PROPULSION LABORATORY

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA, CALIFORNIA

CONTENTS

<u>Section</u>	<u>Page</u>
I. Introduction	1
A. Objective	1
B. Scope	1
II. Requirements	2
A. Personnel	2
B. Equipment Required Per Operation	2
C. Instrumentation	3
D. Applicable Documents	3
E. Communications	3
F. Test Sequence	3
III. Special Instructions	4
A. Safety	4
IV. Preparation	5
A. Cleaning Solution	5
B. Germicidal Solutions	5
C. Cleaning Equipment	5
V. Procedure	7
A. Cleaning Schedule	7
B. Equipment Operation	7
C. Detail Procedure	10
D. Personnel Procedures	11
E. Semi-Annual Cleaning	11
F. Microbiological Assay of Cleaning and Decontamination Procedures	11
VI. Quality Assurance Provisions	12
A. Daily Monitoring	12
B. Random Audit	12
C. Assay Verification	12
D. Failure Reporting	12

I. INTRODUCTION

A. OBJECTIVE

This document establishes the procedures necessary to perform the routine cleaning and decontamination of the JPL Sterilization Assembly and Development Laboratory (SADL).

B. SCOPE

These procedures apply only to the JPL SADL located in Building 233. They are general and preliminary in nature, since microbiological requirements for SADL have not yet been established. When they have been, this procedure must be revised as required to ensure that microbiological constraints are met.

II. REQUIREMENTS

A. PERSONNEL

1. Microbiological Engineer
2. Microbiological Technician
3. Janitors (Three per shift)
4. Alternate Janitors (at least one, preferably two)
5. Quality Assurance Engineer

B. EQUIPMENT REQUIRED PER OPERATION

1. Stainless Steel Buckets or Plastic Buckets (sterile)
2. Synthetic Mops (sterile) (Nylon or polyethylene composition)
3. Synthetic Sponges (sterile)
4. Wiping Cloths (Dacron)
5. Plastic Bottles
6. Vacuum Cleaner with Final Filter
7. Vacuum Cleaner Attachments
8. Portable Step Ladder and Scaffolding
9. Rodac Plates
10. Sterile Cotton Swabs and Templates
11. Microbiological Equipment
12. 70 percent Isopropyl Alcohol Aqueous Solution
13. 2 percent Amphyl Aqueous Solution
14. 0.1 percent Dowfax 9N9 Aqueous Solution

C. INSTRUMENTATION

Not applicable

D. APPLICABLE DOCUMENTS

1. Procedures

- a. Sterilization Group Procedure No. 1, "Microbiological Assay and Certification of Spacecraft Hardware Sterility."
- b. EASL Procedure No. 101.00, "Problem/Failure Reporting System."
- c. SADL Procedure No. 201.00, "Personnel Practices."
- d. SADL Procedure No. 300.01 "Microbiological Assay and Certification of Spacecraft Hardware Sterility," for future release.

2. Specifications

- a. Federal Standard 209a, "Clean Room and Work Station Requirements, Controlled Environment."

E. COMMUNICATIONS

Not applicable

F. TEST SEQUENCE

Not applicable

III. SPECIAL INSTRUCTIONS

A. SAFETY

1. Cleaning solutions may cause skin irritation and are harmful if taken internally.
2. A three man janitorial crew is required when cleaning the laminar down flow room. The third man is to remain in the OSE area at all times.

IV. PREPARATION

A. CLEANING SOLUTION

1. Cleaning solution will consist of one tenth of one percent Dowfax 9N9 aqueous solution.
2. This non-ionic detergent solution may be stored indefinitely in plastic stoppered containers.

B. GERMICIDAL SOLUTIONS

1. General wiping of cleaning equipment will be with a 2 percent amphyl aqueous solution.
2. Wiping of previously sterilized containers, etc., will be accomplished with a 70 percent isopropyl alcohol aqueous solution.
3. Both of these solutions are to be used within two weeks of preparation, and are to be stored in stoppered plastic containers.

C. CLEANING EQUIPMENT

1. Only mops, cloths, or sponges that have been wrapped and sterilized will be used in the cleaning operations.
2. No mop, cloth, or sponge opened and used in one area will be used again in another area.
3. Prior to sterilization, mops and sponges will be individually wrapped in kraft paper or aluminum foil. Wiping cloths will be individually sealed in plastic bags.
4. Mops, cloths, and sponges will be sterilized by steam at 250°F (121°C) for 25 minutes, followed by a drying cycle of sufficient length to thoroughly dry the material.
5. The vacuum cleaner hose, metal extension, and nozzle will be washed with Dowfax solution and then wiped down with 70-percent isopropyl alcohol solution prior to use.
6. All cleaning equipment packages transported into rooms 140, 141, 142, 143, 144, 127, 138, 115, 133, and 134 will be wiped down with amphyl solution prior to entering the areas.

7. The foil covering for the sponges may be used as a container for the Dowfax or alcohol solutions employed for washing or wiping.
8. Buckets required in the mopping operation will be wrapped in kraft paper and subjected to either steam sterilization cycle of c. 4 or a dry heat cycle of 350°F (175°C) for 3 hours; only stainless steel buckets can be exposed to the dry heat cycle.
9. Buckets (used only for mopping) will be wiped down with amphyl solution prior to being taken into the room to be cleaned for use and will be unwrapped in the room. They will not be moved to another room for re-use.
10. Dowfax 9N9 solution will be taken in plastic bottles into the room to be cleaned. The bottles will be of size such that the entire contents can be used in the operation. The bottles will be wiped down with amphyl solution prior to entry into the respective area.

V. PROCEDURE

A. CLEANING SCHEDULE

1. Table 1. following, defines a one week schedule of cleaning/decontamination requirements. Note that cleaning/decontamination is performed five times a week.
2. The sequence of cleaning operations is numerically indicated for each day of operation.
3. Figure 1, a floor plan of the SADL facility, identifies each area specified in this procedure.
4. This schedule is tentative

B. EQUIPMENT OPERATION

1. Vacuum Cleaner

The SADL vacuum cleaning system is a central system, with the motor and collector on the main floor of the mechanical equipment room. Piping is installed to outlets in the floor of the assembly room, to two outlets in the biology laboratory and to two outlets in the sterile transfer room. The outlets in the assembly room are under the floor panels about under the hooks. Flexible piping and attachments for cleaning are kept in each room in which the cleaning system is operated. The vacuum cleaning system is turned on and off only at the electrical distribution panel in the mechanical equipment room.

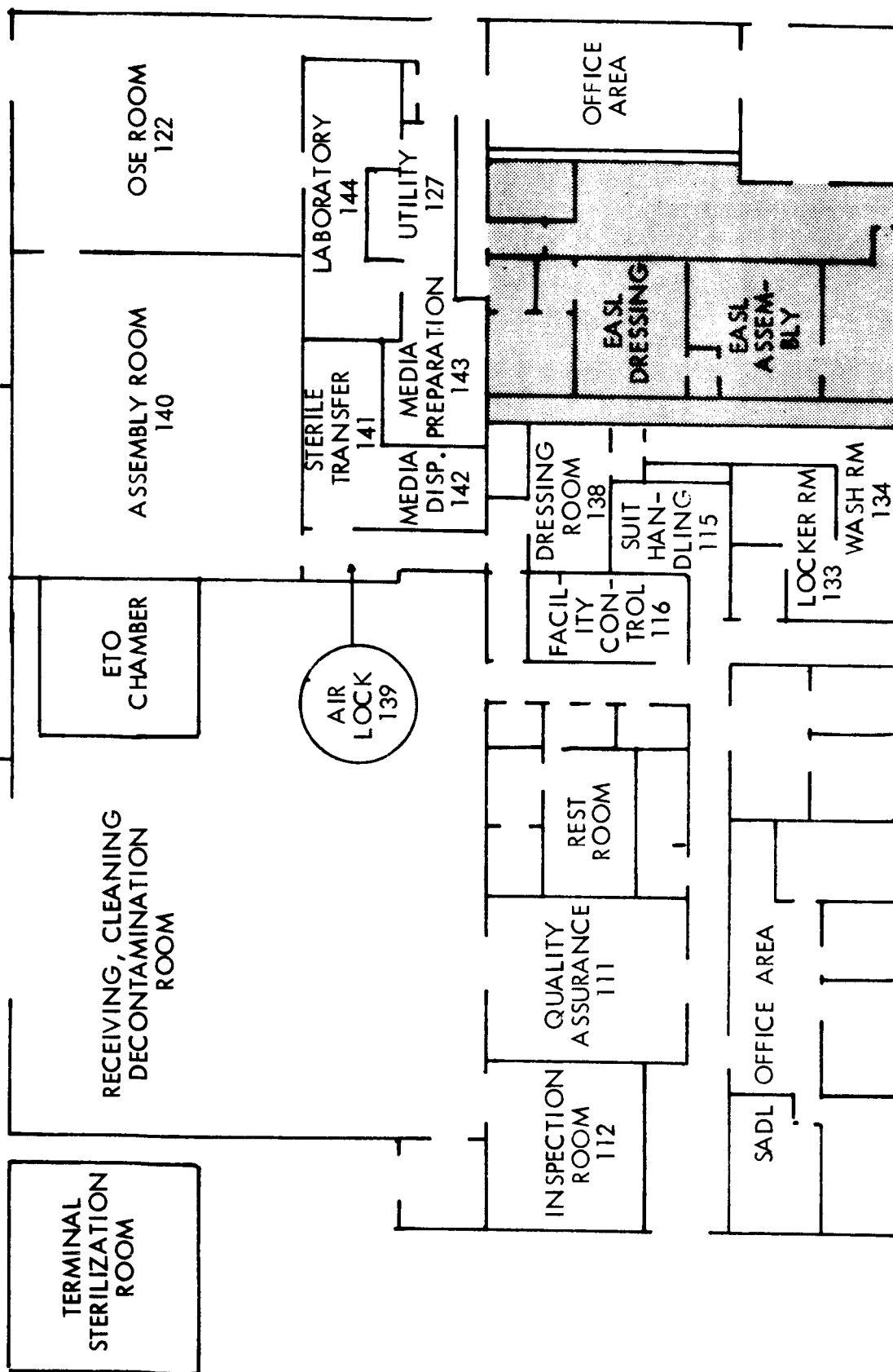


Figure 1. STERILIZATION ASSEMBLY DEVELOPMENT
LABORATORY FLOOR PLAN

TABLE I

TENTATIVE SADL CLEANING SCHEDULE

	Mon.	Tue.	Wed.	Thur.	Fri.		Mon.	Tue.	Wed.	Thur.	Fri.
1. Utility Room (127)						7. Dressing Room (138) & Air Shower					
a) Vacuum walls and floor	X					a) Vacuum walls, doors, and floor			X		
b) Dowfax uncovered working surfaces, equipment, and doors	X					b) Dowfax wash walls, doors, and floor, equipment, and furniture			X		
c) Alcohol wipe uncovered working surfaces, equipment, and doors		X		X		c) Alcohol wipe working surfaces and door mechanism		X		X	
d) Dowfax mop floor	X										
2. Media Preparation Room (143)						8. Airlock Room (139)					
a) Vacuum walls and floor	X					a) Vacuum walls, doors, and floor			X		
b) Dowfax uncovered working surfaces, equipment (including pass thru), and doors	X					b) Dowfax wash ceiling, walls, and doors, floor, and working surfaces			X		
c) Alcohol wipe uncovered working surfaces, equipment (including pass thru), and doors		X		X		c) Alcohol wipe working surfaces and door hooks		X		X	
d) Dowfax mop floor	X										
3. Laboratory Room (144)						9. Media Dispensing Room (142)					
a) Vacuum walls and floor	X					a) Vacuum walls and floor			X		
b) Dowfax uncovered working surfaces, equipment (including pass-thrus), and door	X					b) Dowfax wash walls, ceiling uncovered equipment and working surfaces, and all furniture			X		
c) Alcohol wipe uncovered working surfaces, equipment (including pass-thrus), and doors		X		X		c) Alcohol wipe uncovered working surfaces		X		X	
d) Dowfax mop floor	X										
4. Suit Handling Room (115)						10. Sterile Transfer Room (141)					
a) Vacuum walls and floor	X					a) Vacuum walls and floor			X		
b) Dowfax uncovered working surfaces, equipment (including pass-thrus), and doors	X					b) Dowfax wash walls, ceiling, uncovered equipment and working surfaces (including pass-thrus), and all furniture			X		
c) Alcohol wipe uncovered working surfaces, equipment (including pass-thrus), and doors		X		X		c) Alcohol wipe uncovered working surfaces		X		X	
d) Dowfax mop floor	X										
5. Shoe Cleaner Room (114) and Locker room (113)						11. Assembly Room (140)					
a) Vacuum Walls, doors, and floor			X			a) Vacuum walls, floor, and door					X
b) Dowfax wash working surfaces, doors, and floors			X			b) Dowfax wash walls and window					X
c) Alcohol wipe working surfaces		X		X		c) Dowfax wash fixed equipment (not including capsule hardware or OSE)					X
6. Wash Room (134)						d) Dowfax wash chairs, benches, and working surfaces that are not covered					X
a) Vacuum walls, doors, and floors			X			e) Alcohol wipe uncovered working surfaces		X		X	
b) Dowfax wash working surfaces, doors, and floor			X								
c) Alcohol wipe working surfaces		X		X							

C. DETAIL PROCEDURE

1. The order in which the routine cleaning and decontamination must be carried out is the following:

<u>Typical Day</u>	<u>Order of Cleaning</u>	<u>Room No.</u>
Monday	1	127
	2	143
	3	144
	4	115
Wednesday	1	144+ 113
	2	134
	3	138+Air Shower
	4	139
	5	142
	6	141
Friday	1	140

2. The detailed procedures by which the routine cleaning is to be carried out is as follows:

a) Enter the facility control room and sign the log book on the desk.
Log time "in."

b) Check suit handling (Room 115) for decontaminated clothing. If clothes are not ready, obtain a set from the locker, wipe down with isopropyl alcohol solution and place into the pass thru (this procedure not applicable on Monday, when decontaminated clothing is not required.)

c) Obtain sterilized sponges, mops, and pails and place in pass-thru.

d) Obtain non-sterilized sponges, mops, and pails, and proceed to Clean Room 127, 143, 144, 115, 114, 133, and 134 as required by daily schedule. When the Room 134 has been cleaned, return the non-sterile cleaning equipment to storage, and re-enter the facility via room 114. After preparing for entry again, according to the requirement of SADL 201.00, enter the dressing Room (138), complete dressing procedures, retrieve sterile cleaning equipment, and proceed to clean the controlled environment area in the order stated in paragraph 1, above.

D. PERSONNEL PROCEDURES

1. Cleaning personnel will adhere to the personnel procedures of SADL 201 without deviation.

E. SEMI-ANNUAL CLEANING

At least every 6 months, or at a time when the vertical laminar flow system is shut down, entry should be made via the OSE area to the lower floor, all foreign objects should be retrieved, and the plenum thoroughly vacuumed.

F. MICROBIOLOGICAL ASSAY OF CLEANING AND DECONTAMINATION PROCEDURES

1. On a random basis, a microbiological assay will be made to determine the effectiveness of the cleaning operations. The assay will be performed as required by the SADL microbiological requirements (to be generated)
2. Standard microbiological techniques as described in SADL 300 (to be generated) will be employed.

VI. QUALITY ASSURANCE PROVISIONS

A. DAILY MONITORING

Quality Assurance will monitor the procedure of Section V subsection C each day that cleaning procedures are performed.

B. RANDOM AUDIT

Quality Assurance will randomly audit janitorial performance for conformance to this procedure.

C. ASSAY VERIFICATION

Quality Assurance will review the reported results of the microbiological assay of Section V, subsection F, and determine conformance to the requirements of such other specifications that may be applicable, based on future SADL microbiological requirements.

D. FAILURE REPORTING

Discrepancies and departures from this procedure will be reported in accordance with EASL 101.